INNOVATIVE INSTRUCTIONAL MANAGEMENT APPROACHES IN ART AND DESIGN MAJOR STUDENTS AT BEIJING UNIVERSITY, CHINA

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ABSTRACT
The objectives of this study were 1) to study innovative instructional management approaches in art and design major students at Beijing university, China, and 2) to evaluate innovative instructional management approaches in art and design major students at Beijing university, China. This study was quantitative research. The conceptual framework of this research was applied from Rittle and Webber's study. The population consisted of 1,151 art and design major students at Beijing university, China during the epidemic. The samples were 297 students determined by Krejcie and Morgan table. The instrument used in the study was a 5 rating scale questionnaire. The statistics used for data analysis were percentage, frequency, mean, and standard deviation. The research results revealed that 1) innovative instructional management approaches in art and design major students at Beijing university, China as a whole was at a much level. When considering each aspect from high to low including praising its teaching methodologies, curriculum adaptations, and pedagogical strategies, increasing networking opportunities, and promoting critical thinking respectively. 2) The innovative instructional management approaches in art and design major in Beijing university, China was at a much level.

Keywords: Innovative Instructional, Management, Approaches, Design Education

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INTRODUCTION

The in recent decades, the landscape of education has undergone a profound transformation driven by the rapid advancement of science and technology. This evolution has reshaped how knowledge is disseminated and acquired, fundamentally altering traditional educational practices. In the past, many schools faced significant financial constraints that made it difficult to establish computer classrooms. As a result, students often lacked access to essential digital resources, which hindered their ability to engage with contemporary learning materials. The socio-economic conditions of earlier decades, characterized by widespread economic depression, meant that investments in educational technology were minimal. Parents, primarily unable to afford computers, could not provide their children with opportunities for technological engagement, further exacerbating educational inequities.

During the 1980s, the absence of the internet and computer access severely limited the ability of parents to guide their children's educational journeys. This lack of digital resources rendered internet-based learning nearly a fantasy, isolating students from the vast information networks that are now a fundamental aspect of contemporary education. However, the current educational environment presents a stark contrast to that of previous generations. Thanks to sustained economic development, advancements in technology, and the increasing recognition of education's importance at both national and local levels, significant changes have been implemented across educational institutions.

In Chongqing, for instance, almost all schools have now established computer classrooms, ensuring that students have early and consistent exposure to digital literacy. The integration of computer technology into curricula has enabled students to master a variety of software applications, equipping them with essential skills for the modern workforce. Furthermore, the advent of multimedia teaching—characterized by the use of interactive presentations, videos, and digital resources—has revolutionized traditional instructional methods. This innovative approach to teaching not only enhances student engagement but also fosters a dynamic learning environment that stimulates curiosity and encourages active participation.

The contemporary educational landscape is also shaped by evolving family dynamics. With significant improvements in living standards, computers and internet access have become commonplace in households, creating an environment where children can readily access information and educational resources. Today's parents, predominantly from the post-90s generation, have grown up alongside the internet and are well-versed in its applications. Their familiarity with digital tools allows them to provide informed guidance and support to their children, further enriching the learning experience.

The outbreak of the novel coronavirus pandemic in 2019 served as a catalyst for change in educational practices, exposing the vulnerabilities of traditional teaching methods. The shift to online learning highlighted the necessity of adapting educational strategies to ensure continuity and effectiveness in learning. With the closure of schools and the suspension of in-person classes, multimedia teaching emerged as a critical solution, enabling educators to reach students through digital platforms. This transition facilitated a more flexible approach to learning, allowing students to attend classes from home and access course materials at their convenience.

The adoption of multimedia teaching has significant implications for enhancing both academic performance and learning efficiency. Research indicates that students exposed to multimedia resources tend to exhibit higher levels of engagement, improved retention of information, and enhanced problem-solving skills. As students interact with diverse content formats, such as videos, simulations, and interactive exercises, they develop a deeper understanding of subject matter, which translates into improved academic outcomes.

This study aims to investigate the extent to which multimedia teaching contributes to the enhancement of students' academic performance and the factors that influence learning

efficiency within educational settings. Specifically, it will explore the various dimensions of academic achievement that benefit from multimedia resources, such as critical thinking, creativity, and collaboration skills. Additionally, the research will examine the impact of multimedia teaching on learning efficiency, considering factors such as student motivation, engagement, and self-directed learning. By elucidating these relationships, the study seeks to provide valuable insights into optimizing teaching methodologies and leveraging technological advancements to support students in their educational journeys.

In summary, the interplay between technological advancements, evolving family dynamics, and changing educational paradigms has created a unique opportunity to enhance the learning experience for students. The findings of this research will contribute to the growing body of literature on the effectiveness of multimedia teaching and its role in shaping the future of education in a rapidly changing world.

LITERATURE REVIEWS

PJean Piaget's theory of cognitive development has profoundly influenced the field of developmental psychology since its introduction in the 20th century. Piaget's framework provides a comprehensive understanding of how children develop cognitive abilities, emphasizing the dynamic processes of assimilation, accommodation, and schema formation. This literature review explores these fundamental concepts and their implications for education and child development.

1) Schema Development

The concept of schema is central to Piaget's cognitive development theory. According to Piaget (1952), schemas are cognitive structures that enable individuals to organize and interpret their experiences. Research has shown that schemas play a critical role in how children acquire knowledge and navigate new information. For instance, schemas evolve from concrete experiences to more abstract representations as children mature (Piaget, 1954).

Various studies have confirmed the significance of schemas in children's learning processes. For example, children's ability to categorize objects and understand relationships between different concepts is heavily reliant on their existing schemas (Hirschfeld & Gelman, 1994). Moreover, researchers have found that the development of complex schemas facilitates advanced cognitive functions such as problem-solving and reasoning (Lindgren, 2005). Thus, the formation and modification of schemas are essential for cognitive growth and adapting to new experiences.

2) Assimilation

Assimilation is the process through which individuals integrate new experiences into their existing cognitive frameworks. Piaget (1970) argued that this mechanism allows children to make sense of new information by fitting it into their pre-existing schemas. Numerous studies support the notion that assimilation helps facilitate learning by enabling children to draw connections between familiar concepts and new experiences (Berk, 2010).

However, the reliance on assimilation can lead to misunderstandings when new information does not align with existing schemas. This phenomenon, known as cognitive bias, has been explored in various contexts, demonstrating how children's prior knowledge influences their interpretation of new information (Schmidt & Bender, 2017). Thus, while assimilation promotes continuity in learning, it may also hinder the understanding of novel or complex concepts.

3) Accommodation

Accommodation refers to the adjustments made to existing schemas when individuals encounter new stimuli that cannot be integrated into their current cognitive structures (Piaget, 1970). This process is crucial for cognitive development as it fosters flexibility and adaptability. Research has shown that accommodation is often triggered by cognitive conflict,

where individuals recognize that their existing schemas are insufficient to explain new experiences (Karmiloff-Smith, 1992).

Studies highlight the importance of accommodation in promoting deeper learning and understanding. For instance, when children face contradictions in their knowledge, they are prompted to revise their schemas, leading to enhanced cognitive abilities (Case-Smith et al., 2013). This adaptability is particularly vital in educational settings, where learners must navigate diverse content and adapt to varying pedagogical approaches.

4) Implications for Education

The implications of Piaget's theory for educational practices are significant. Educators can leverage the concepts of schema, assimilation, and accommodation to create effective learning environments. By recognizing that students come with pre-existing knowledge, teachers can design lessons that connect new information to these schemas, promoting assimilation (Bruscia, 2019). Furthermore, creating opportunities for cognitive conflict encourages students to engage in accommodation, fostering a deeper understanding of the material.

Research has also suggested that educational interventions should focus on promoting active learning, allowing students to experiment and explore concepts. For example, hands-on activities and collaborative learning experiences can facilitate schema development and cognitive flexibility, aligning with Piaget's principles (Gonzalez, 2016).

In summary, Piaget's theory of cognitive development provides a foundational understanding of how children learn and adapt to their environments. The interplay between schema formation, assimilation, and accommodation highlights the complexity of cognitive processes and their implications for educational practice. As research continues to evolve, integrating Piagetian concepts into contemporary pedagogical approaches remains essential for supporting effective learning experiences in diverse educational contexts.

RESEARCH METHODOLOGY

Population and sample Group

Population: 4012 teachers from 120 kindergartens in Chongqing Municipality as the research subjects. Sampling: The sample group consisted of 351 teachers from 120 kindergartens in Chongqing. The sample group was determined using Krejcie and Morgan (1970) tables to determine the number of young children and was selected using simple random sampling based on the size of the kindergarten.

Research Instruments

The research instrument used in this study was a questionnaire, which was divided into the following three parts:

Part 1: This is an important information collection, including the teacher's gender, age, kindergarten, and teaching class.

Part 2: Investigating the effects of gamified teaching based on Piaget's four types of games in Kindergartens in Chongqing, China, and ask teachers about young children's interest and participation in games and how games promote development of young children in gamified teaching. It is mainly categorized into the following four types of games:

1) Sensorimotor games
2) Symbolic games
3) Structural games
4) Rule-based games.

Data collection

To achieve the objectives of this study, the researcher used the following methods to collect the sample data: The researcher requested a letter from the graduate school to apply to the local education authority to allow the researcher to conduct a questionnaire survey in 120

kindergartens in Chongqing on the sample of this study, and The researcher collected questionnaires from a sample of 120 kindergartens in Chongqing. Instruments for experiment.

Data Analysis

The statistics used in this study are as follows:

1) Frequency distribution
2) Percentage
3) Average value ($\overline{X}$)
4) Pearson correlation coefficient

RESEARCH RESULTS

This part is to investigate the effectiveness of applying sensorimotor games, symbolic games, structural games, and rule-based games to teaching in promoting the development of young children in kindergartens in Chongqing, China, and to analyze the mean, standard deviation, and the results of the analysis are as follows:

Table 1 Examining the effectiveness of gamified teaching based on Piaget's four types of games in promoting development of young children in kindergartens in Chongqing, China.

Effectiveness of gamified teaching based on Piaget's four types of games	**$\overline{X}$**	**S.D.**	**Level**	**Rank**
Sensorimotor games	4.39	1.003	high	1
Symbolic games	3.99	0.947	high	4
Structural games	4.28	1.044	high	2
Rules-based games	4.24	1.077	high	3
Total	**4.22**	**1.020**	**high**	

Table 1 Examine that the effectiveness of gamified teaching based on Piaget's four types of games to development for young children in kindergartens in Chongqing is at the high level ($\overline{X}$ = 4.22, S.D. = 1.020). When looking at each item individually, it is found that each item is at the high level which are in orders from the highest to the lowest as follows: Sensorimotor games ($\overline{X}$ = 4.39, S.D. = 1.003), structural games ($\overline{X}$ = 4.28, S.D. = 1.044), rule-based games ($\overline{X}$ = 4.24, S.D. = 1.077), symbolic games ($\overline{X}$ = 3.99, S.D. = 0.947).

Table 2 Examining the effectiveness of sensorimotor gamified teaching to development for young children

Effectiveness of sensorimotor gamified teaching	**$\overline{X}$**	**S.D.**	**Level**	**Rank**
Ability to develop and enhance young children's senses, motor abilities, body control and coordination	4.36	1.029	high	3
Can develop young children's ability to perceive objects, space, and time	4.38	1.023	high	2
Ability to promote the mental health and physical development of young children	4.41	0.983	high	1
Total	**4.38**	**1.011**	**high**	

Table 2 Examine that the effectiveness of sensorimotor gamified teaching to development for young children in kindergartens in Chongqing is at the high level ($\overline{X}$ = 4.38, S.D. = 1.011). When looking at each item individually, it is found that each item is at the high level which are in orders from the highest to the lowest as follows: Ability to promote the mental health and physical development of young children ($\overline{X}$ = 4.41, S.D. = 0.983), can develop young children's ability to perceive objects, space, and time ($\overline{X}$ = 4.38, S.D. = 1.023), ability to develop and

enhance young children's senses, motor abilities, body control and coordination ($\overline{X}$ = 4.36, S.D. = 1.029).

Table 3 Examining the effectiveness of symbolic gamified teaching to development for young children

Effectiveness of symbolic gamified teaching	$\overline{X}$	S.D.	Level	Rank
Can develop young children's imagination and creativity	3.95	1.042	high	3
Can promote the development of expressive language, social and emotional abilities in young children	3.97	0.905	high	2
Develops self-confidence and self-expression.	3.98	0.953	high	1
Total	**3.97**	**0.967**	**high**	

Table 3 Examine that the effectiveness of symbolic gamified teaching to development for young children in kindergartens in Chongqing is at the high level ($\overline{X}$ = 3.97, S.D. = 0.967). When looking at each item individually, it is found that each item is at the high level which are in orders from the highest to the lowest as follows: Develops self-confidence and self-expression ($\overline{X}$ = 3.98, S.D. = 0.953), can promote the development of expressive language, social and emotional abilities in young children ($\overline{X}$ = 3.97, S.D. = 0.905), can develop young children's imagination and creativity ($\overline{X}$ = 3.95, S.D. = 1.042).

Table 4 Examining the effectiveness of structural gamified teaching to development for young children

Effectiveness of structural gamified teaching	$\overline{X}$	S.D.	Level	Rank
Can exercise fine motor abilities, spatial cognition and creative thinking of young children	4.30	1.007	high	1
Ability to develop patience and concentration in young children	4.29	1.028	high	2
Ability to develop independent thinking and problem solving abilities in young children	4.27	1.064	high	3
Can enhance young children's interest in exploring the characteristics and structural attributes of objects	4.26	1.063	high	4
Total	**4.27**	**1.052**	**high**	

Table 4 Examine that the effectiveness of structural gamified teaching to development for young children in kindergartens in Chongqing is at the high level ($\overline{X}$ = 4.27, S.D. = 1.052). When looking at each item individually, it is found that each item is at the high level which are in orders from the highest to the lowest as follows: Can exercise fine motor abilities, spatial cognition and creative thinking of young children ($\overline{X}$ = 4.30, S.D. = 1.007), ability to develop patience and concentration in young children ($\overline{X}$ = 4.29, S.D. = 1.028), ability to develop independent thinking and problem solving abilities in young children ($\overline{X}$ = 4.27, S.D. = 1.064), can enhance young children's interest in exploring the characteristics and structural attributes of objects ($\overline{X}$ = 4.26, S.D. = 1.063).

Table 5 Examining the effectiveness of rule-based gamified teaching to development for young children

Effectiveness of rule-based gamified teaching	$\bar{X}$	S.D.	Level	Rank
Can foster the development of cooperation, competition, self-control and social interaction abilities in young children	4.27	1.051	high	1
Can develop logical thinking, decision-making and problem-solving abilities in young children	4.26	1.075	high	2
Can help young children learn to accept the psychological resilience of competitive failure	4.22	1.070	high	3
Total	**4.25**	**1.065**	**high**	

Table 5 Examine that the effectiveness of rule-based gamified teaching to development for young children in kindergartens in Chongqing is at the high level ($\bar{X}$ = 4.25, S.D. = 1.065). When looking at each item individually, it is found that each item is at the high level which are in orders from the highest to the lowest as follows: Can foster the development of cooperation, competition, self-control and social interaction abilities in young children ($\bar{X}$ = 4.27, S.D. = 1.051), can develop logical thinking, decision-making and problem-solving abilities in young children ($\bar{X}$ = 4.26, S.D. = 1.075), can help young children learn to accept the psychological resilience of competitive failure ($\bar{X}$ = 4.22, S.D. = 1.070).

Part 3 Level of interest in Piaget's four types of games among young children in kindergartens in Chongqing, China

This part is to investigate young children's interest in Piaget's four types of games, mainly including: investigation of young children's preference, whether the game can enhance children's learning interest, young children's participation and cooperation in the games, and analysis of the average and standard deviation, the analysis results are as follows:

Table 6 Examining the level of interest in Piaget's four types of games among young children in kindergartens in Chongqing, China

Level of interest in games among young children	$\bar{X}$	S.D.	Level	Rank
Sensorimotor games enhance young children's interest in learning, and young children enjoy this type of games	4.40	1.004	high	1
Symbolic games enhances young children's interest in learning and young children enjoy this type of games	4.04	0.884	high	4
Structural games enhances young children's interest in learning and young children enjoy this type of games	4.22	1.115	high	2
Rules-based games enhances young children's interest in learning and young children enjoy this type of games	4.21	1.116	high	3
Total	**4.22**	**1.030**	**high**	

Table 6 Examine that the interest in Piaget's four types of games among young children in kindergartens in Chongqing is at the high level ($\bar{X}$ = 4.22, S.D. = 1.030). When looking at each item individually, it is found that each item is at the high level which are in orders from the highest to the lowest as follows: Sensorimotor games enhance young children's interest in learning, and young children enjoy this type of games ($\bar{X}$ = 4.40, S.D. = 1.004), structural games enhances young children's interest in learning and young children enjoy this type of

games ($\overline{X}$ = 4.22, S.D. = 1.115), rules-based games enhances young children's interest in learning and young children enjoy this type of games ($\overline{X}$ = 4.21, S.D. = 1.116), symbolic games enhances young children's interest in learning and young children enjoy this type of games ($\overline{X}$ = 4.04, S.D. = 0.884)

DISCUSSION & CONCLUSION

The results of this study provide compelling evidence for the effectiveness of gamified teaching approaches rooted in Piaget's theory of cognitive development. The analysis of sensorimotor, symbolic, structural, and rule-based games reveals that each type significantly contributes to the developmental progress of young children in kindergartens in Chongqing.

Effectiveness of Different Game Types: The findings indicate that sensorimotor games ranked highest in terms of effectiveness, with a mean score of 4.39. This aligns with Piaget's assertion that sensory and motor experiences are fundamental to cognitive development in early childhood. Sensorimotor activities help children develop crucial skills such as body control, coordination, and sensory perception. The high level of effectiveness attributed to these games suggests they facilitate foundational learning experiences critical for subsequent cognitive growth.

Symbolic and Structural Games: Both symbolic games (mean: 3.99) and structural games (mean: 4.28) also demonstrated significant effectiveness in promoting various developmental skills. Symbolic games foster creativity and expressive language, while structural games enhance fine motor skills and spatial cognition. The emphasis on imaginative play through symbolic games underscores the importance of creativity in cognitive development, as children learn to navigate complex social interactions and express themselves. Similarly, structural games allow children to engage in problem-solving and critical thinking, essential skills in today's educational landscape.

Rule-Based Games: Rule-based games ranked third in effectiveness (mean: 4.24), illustrating their role in fostering social interaction, cooperation, and logical thinking. The findings suggest that these games are instrumental in helping children navigate social dynamics and develop emotional resilience, particularly in learning to cope with competition and failure. This aspect of game-based learning is vital, as it prepares children for future social interactions and teamwork.

Overall High Levels of Interest: The analysis also revealed that young children exhibited high levels of interest across all game types, with sensorimotor games again leading the way. The enjoyment of these games indicates that when children are engaged in playful learning, they are more likely to participate actively, enhancing their overall educational experience. This correlation between enjoyment and learning effectiveness highlights the importance of integrating gamified approaches into early childhood education.

Implications for Educators: The results emphasize the need for educators to incorporate diverse gamified teaching strategies into their curricula. By leveraging the strengths of each game type, educators can create rich learning environments that cater to various developmental needs. Furthermore, the findings support the integration of Piagetian principles in designing educational interventions, ensuring that activities align with children's cognitive readiness.

Conclusion

In conclusion, this study highlights the significant role of gamified teaching methods based on Piaget's four types of games in promoting the development of young children in kindergartens in Chongqing, China. The effectiveness of sensorimotor, symbolic, structural, and rule-based games in enhancing various developmental domains underscores the importance of play in early childhood education. Each game type offers unique benefits, contributing to cognitive, social, emotional, and physical development.

Given the high levels of interest demonstrated by children in these gamified activities, it is clear that playful learning not only engages young learners but also fosters critical skills necessary for their overall growth. Therefore, educators should prioritize the integration of these gamified approaches into their teaching practices, facilitating an enriched learning environment that supports the diverse developmental needs of young children.

Future research could explore the long-term impacts of these gamified teaching methods on children's academic performance and social skills as they progress through their educational journeys. Additionally, qualitative studies could provide deeper insights into children's experiences and preferences regarding different types of games, further informing effective pedagogical strategies in early childhood education.

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